Public involvement in forest management
nning: a comparative analysis
es and preferences in Alberta

rkins, R.C. Stedman, and B.L. McFarlane

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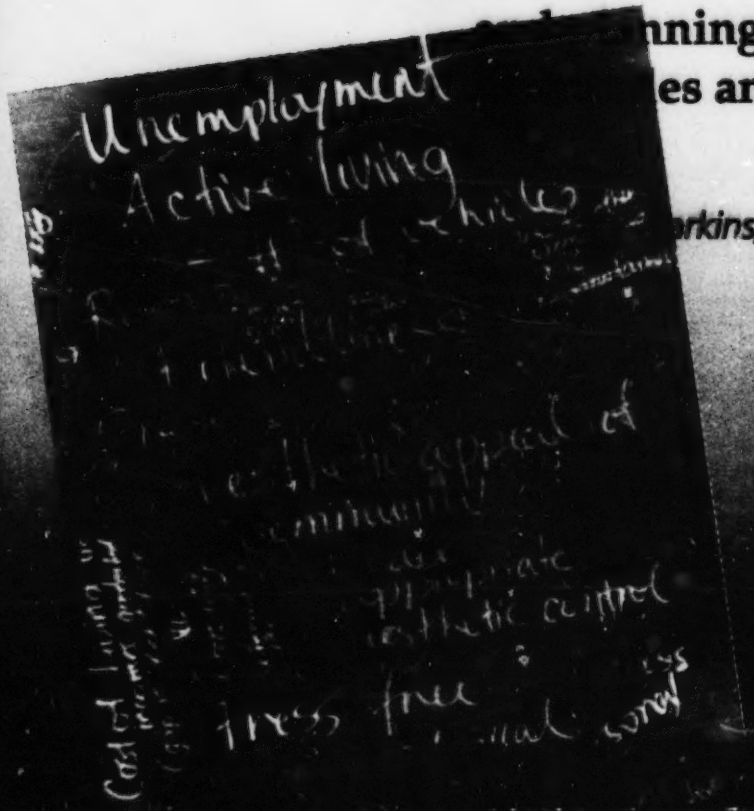

foothills model forest
a growing understanding

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La forêt modèle Foothills est un partenariat extraordinaire devoué à fournir des solutions pratiques envers la gestion durable de nos forêts.

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PUBLIC INVOLVEMENT IN ALBERTA FOREST MANAGEMENT: DO ADVISORY GROUPS REPRESENT THE PUBLIC?

J.R. Parkins, R.C. Stedman, and B.L. McFarlane

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ABSTRACT

This report presents a descriptive analysis of attitudes and behaviors associated with public involvement in forest management in Alberta. Data were collected by mail survey in 1999 from two main groups; the general public and members of forest-industry public advisory groups (PAGs). The survey measured general levels of public interest in forest management, and determined the public's preferred forms of involvement. Sources of information, perceptions of the accuracy of those sources, and perceptions of organizational and community groups influence on forest management were also assessed. Results suggest that PAG members differ from the general public in terms of socioeconomic characteristics and in terms of attitudes and behaviors associated with public involvement. Furthermore, the findings illuminate two conditions with respect to public involvement. First, the respondents accessed a wide range of information about forest management and had distinct preferences for one source of information over another depending on their geographic location (urban or rural) and their degree of contact with the forest industry (PAG members or the general public). Second, the respondents strongly supported public involvement in general and clearly preferred citizens' committees as a specific mechanism for that involvement. Although the representativeness of PAGs is considered key to effective public involvement, the authors recommend moving beyond the profile of PAG members to evaluating the process within which their deliberations take place.

RÉSUMÉ

Ce rapport présente une analyse descriptive des attitudes et des comportements associés à la participation du public à la gestion forestière en Alberta. Les données ont été recueillies en 1999 lors d'une enquête effectuée par l'envoi d'un questionnaire par la poste auprès de deux groupes principaux, le grand public et les membres des groupes de vigilance publique sur l'industrie forestière. L'enquête a permis de mesurer le niveau d'intérêt général du public pour la gestion des forêts et de déterminer la façon préférée du public de participer. Les sources d'informations, le degré d'exactitude perçu de ces sources, et la perception de l'influence des groupes organisationnels et communautaires sur la gestion forestière ont également été évalués. Les résultats suggèrent que les membres des groupes de vigilance diffèrent du grand public en termes de caractéristiques socioéconomiques et en termes d'attitudes et de comportements associés à la participation du public. De plus, les résultats mettent en lumière deux conditions à la participation du public. Premièrement, les répondants ont accédé à une vaste gamme d'informations sur la gestion forestière et ont manifesté une préférence marquée pour une source d'information aux dépens d'une autre en fonction de leur lieu d'habitation (zone urbaine ou zone rurale) et de leur plus ou moins grand contact avec l'industrie forestière (les membres des groupes de vigilance ou le grand public). Deuxièmement, les répondants ont fermement soutenu la participation du public en général et ont clairement préféré les comités de citoyens comme mécanisme spécifique de participation. Bien que la représentativité des groupes de vigilance soit considérée comme un facteur clé de la participation du public, les auteurs recommandent de dépasser le profil des membres de ces groupes pour évaluer le processus à l'intérieur duquel leurs délibérations ont lieu.

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INTRODUCTION

The public is becoming increasingly critical of the way resource decisions are made. Forest planning is not immune to this public outcry. A multitude of stakeholders, whose interests in the forest are often contrary to timber harvest, are speaking out. These stakeholders are not just critical of forest-management practices–they also express a growing impatience with the forest-planning process, specifically with the lack of opportunity for effective and meaningful input and involvement.

P.E. Higgelke and P.N. Duinker,
Open doors: public participation in forest management in Canada

Over the past decade, social science researchers have directed considerable time and energy toward the subject of public involvement in forest resource planning (Tanz and Howard 1991; Gericke et al. 1992; Shindler and Neurka 1997; Duinker 1998). These authors have been responding to an increasing realization among governments, industry, and the general public that public involvement is a key ingredient to effective decision making and policy development related to forest management. During this period, public involvement in natural resource planning has grown from small-scale public education initiatives (such as public hearings and open houses), designed to inform the public about plans for harvesting timber or building roads, to provincial or national surveys and media campaigns designed to gather information from a cross-section of Canadians regarding their expectations of benefits from the forest landscape (e.g., Environment Canada 2000).

Tanz and Howard (1991) outlined four reasons why public involvement has become such an important aspect of planning and managing Canada's forests. First, forests on Crown Land are, by definition, owned by the people of Canada. As owners, members of the public are demanding opportunities to influence long-range forest management planning. Questions about the specific benefits that the Canadian public wants to gain from forests and the values that should take precedence in the context of a limited resource base cannot be answered without input from the public. Second, the public has demonstrated the capacity to make sound and prudent choices about natural resources. Knopp and Caldbeck (1990) as well as Beckley and Korber (1996) provide support to this claim. For difficult choices between competing, incompatible resource uses, decision-making processes involving the general public have generated more reasonable and acceptable decisions than processes involving special interest groups alone. Third, forest management plans are not likely to succeed without public acceptance (e.g., Knopp and Caldbeck 1990). Today, when such plans are increasingly subjected to public scrutiny, effective public input can make the difference between success and failure. Finally, public involvement can bring individuals with specialized knowledge to the planning table. People with expertise in nongame wildlife, nontraditional forest products, spiritually important sites, and recreational use can provide crucial information to planners that might otherwise not be included in forest management planning.

For these reasons, Canadians are calling for more effective and meaningful opportunities for direct input into forest management and planning. At the same time, considerable frustration exists about how to involve the public effectively (Higgelke and Duinker 1993). Public involvement activities are often burdened with heavy administrative and financial costs and may yield few concrete results. Often, such activities are met with one of two responses: outright apathy from local residents or participation by nonrepresentative groups of citizens with views that strongly conflict with those of the forest industry. In either case, it is difficult to claim that effective public involvement has taken place. As a result, agencies responsible for public involvement are looking for new and better ways of engaging a larger, more representative proportion of the public, people who may not participate in more traditional activities such as open houses or public hearings.

Survey Research to Enhance Public Involvement in Forest Management

With this recent history in mind, two surveys were administered in the summer of 1999. The first, which has already been published was designed to enhance understanding of the forest values of a random sample of Alberta residents, registered professional foresters, environmentalists, and PAG (public advisory group) members (McFarlane and Boxall 2000). The study described here was designed to gain a better understanding of existing and potential mechanisms for public involvement in forest management and policy development in Alberta. More specifically, this study set out to assess the following aspects of public involvement:

- public interest in forest management
- the sources from which the public obtains information about forest-related topics
- the public's perception of the accuracy of those sources
- how the public has been involved in forest management
- the public's preferred future forms of involvement
- the public's perception of organizational and community groups influence in forest management.

In assessing these specific aspects of public involvement, insights were gained into some commonly held assumptions regarding public involvement, for example, that the views of urban residents differ substantially from those of rural residents and that current public involvement structures such as advisory groups are ineffective and do not represent the general public, a view held by many of those who are critical of public involvement. The results of this study assist in addressing certain key questions: Do the views of Alberta residents differ depending on urban or rural location? Are current strategies for public involvement effective and acceptable to the Alberta public? Do public advisory groups (PAGs) exhibit views and opinions that represent those of the general public? And, finally, can this information help to improve future public involvement activities in Alberta?

These questions are addressed in this report with a specific focus on the Foothills Model Forest (FMF). The FMF is a nonprofit corporation comprising a diverse collection of industrial, academic, government, and nongovernment partners. These partners are dedicated to developing practical solutions for the stewardship and sustainable development of a specific portion of the Rocky Mountain and eastern slopes region of west-central Alberta. The three principal partners with management authority for the FMF land base are Weldwood of Canada Limited (Hinton Division), Alberta Department of Sustainable Resource Development, and Jasper National Park (Foothills Model Forest 2001). Driven by local stakeholder involvement and shared decision making, the FMF seeks effective mechanisms for involving both local and nonlocal publics in managing these lands. Therefore, results for the random sample of Alberta residents surveyed are reported in four categories: FMF residents, urban residents (living in Calgary or Edmonton), all other respondents in rural and smaller urban areas, and the combined total of all respondents. The combined total is referred to interchangeably as the general public and the Alberta public. This breakdown allowed for comparisons between FMF residents and residents of other regions of the province.

In addition to the random sample of Alberta residents, all members of forest-industry advisory committees or PAGs were surveyed. Public advisory groups are committees endorsed by industry and the provincial government, designed as a mechanism for public involvement in local activities related to the forest industry. At the time of this study, 12 advisory groups existed across the province. Although the membership profile varies among these groups, they are generally composed of a wide range of local citizens such as business representatives, clergy, representatives of educational institutions, government officials, and medical representatives. Given the dominant role of PAGs as a tool for public involvement in Alberta, survey results for PAG members were compared with those for other members of the general public. The major research question in this regard was the extent to which PAG members represent the general public in Alberta.

Public Involvement in the FMF

In a recent study of the FMF, Beckley (1999) reviewed existing mechanisms used by natural resource management agencies to solicit input from the general public. Of these, the most common were advisory groups, public hearings, and open houses. In addition to these common mechanisms, Beckley also identified a variety of alternative mechanisms, including surveys, focus groups, and workshops. Surveys and focus groups come directly out of the social science research tradition and bring a unique set of strengths and weaknesses to the existing public involvement mechanisms. In addition, Beckley outlined a set of elements to increase the likelihood of success of public involvement efforts. These elements were used to develop eight criteria for evaluating the effectiveness of public involvement activities in the FMF area from 1995 to 1998. The criteria state that an effective process has the following characteristics:

- facilitates two-way information flow
- is flexible in scope
- is representative of the target population
- is open to new input and new participants
- provides guidance to managers
- allows for frank and open discussion
- is cost-effective in relation to the information received
- gives something back to participants.

One of the primary outcomes of this evaluation was the realization that no single public involvement mechanism or tool performs well with respect to all criteria. For instance, PAGs may facilitate two-way information flow and may be flexible in scope but, typical of small groups, they tend to be less open to new input and new participants than are other mechanisms. In turn, surveys can be effective at soliciting input from a representative sample of the target population and can be cost-effective, but they are often less flexible than PAGs and do not generally give much back to the participants.

As a result of the specific strengths and weaknesses inherent in individual mechanisms, experts commonly advise that a range of mechanisms be used in any broad-reaching public involvement strategy (Duinker 1998; Beckley 1999). Furthermore, officials should choose a mechanism appropriate for the nature of the input required. For instance, if public input is required in setting broad-ranging forest management goals, then a random sample of residents may be appropriate. If specific information is required from individuals with expertise in wildlife habitat or knowledge of culturally sensitive sites, then focus groups or workshops may be more appropriate. This type of multiphase approach to public involvement can capitalize on the strengths of specific mechanisms while mitigating their weaknesses.

In this sense, the survey research conducted by McFarlane and Boxall (2000) and that reported here can be viewed as a form of public participation in Alberta forest management. To the extent that survey research can provide information on attitudes and preferences from a representative sample of the target population, this research forms part of a multiphase approach to public involvement in the FMF and beyond. One of the other benefits of survey research is that it provides the opportunity to test directly one of the most widely cited criteria for effective public involvement. In Beckley's list of elements for successful public involvement, the representativeness of public deliberations was key, and other researchers have also examined the issue of adequate representation. Gundry and Heberlein (1984) used three Wisconsin case studies to test the common claim that the opinions expressed at public meetings often do not represent the views of the general public. More recently, Overdevest (2000) and McComas (2001) used surveys to address the same concern over representation in public meetings. All of these studies employed samples of meeting participants and nonparticipants. Overdevest (2000) found that the interest groups broadly represented in public meetings did in fact accurately reflect public values, whereas McComas (2001) found that people who attended public meetings differed from those who did not attend. All of these authors discussed the implications of their findings for the effectiveness of public involvement processes, expressing specific concern about perceived bias, trust, and the arrival at recommendations deemed acceptable by the general public. The research presented here will add to the literature on representation and public involvement with a specific focus on both the sources and the accuracy of information on forest management.

METHODS

To explore questions regarding public involvement in managing Alberta's forested lands, a general population survey of Alberta residents was conducted. The sample was obtained by random selection of telephone numbers. To allow statistical comparisons between FMF residents and other Alberta residents, the communities in and near the FMF (Brule, Cadomin, Edson, Grande Cache, Hinton, Jasper, and Robb) were oversampled. For making generalizations about the general public, data were weighted to account for the overrepresentation of FMF residents in the sample. Respondents were 18 years of age or older, and interviewers alternated between male and female respondents. A total of 3048 people were contacted and participated in a short telephone survey. Of these respondents, 2000 agreed to participate in a follow-up mail survey (400 of whom lived in the FMF area). The 2000 respondents were randomly assigned to receive one of two surveys: one on public involvement (reported here) or one on forest values and attitudes (McFarlane and Boxall 2000). Thus, each mail survey had a sample of 1000.

The public involvement survey was mailed in June 1999. About 10 days later, a reminder postcard was sent, and about 1 month after the initial mailing a second reminder and survey were sent to those who had not responded. About 2 weeks later, a final letter was sent to nonrespondents.

To compare the general public with members of PAGs, a similar survey was sent to 12 PAGs (11 groups chose to participate in the survey) that existed in the province in 1999. The surveys were distributed to PAG members by the forest company coordinators in August 1999. Only four coordinators distributed reminder letters to nonrespondents, and no further follow-up with PAG members was possible.

RESULTS

A total of 664 people responded to the survey of the general public, for a response rate of 66.4% (Table 1). The response rate for PAG members was 44.9% (71/158).

The results reported here focus primarily on FMF, urban, and PAG respondents. This approach has been taken to simplify discussion and to focus attention on similarities and differences between PAG members and FMF residents, considered here as proxies for residents of other forest-dependent regions of the province. Oversampling in the FMF provided a strong basis for comparison of this group with PAG members and with urban residents and assisted in the evaluation of the representativeness of PAG membership. In general, results for "all other respondents" were most similar to those of urban residents.

Socioeconomic Characteristics

On the whole, FMF residents, urban residents, and PAG members were similar in age structure (average age 44.1, 45.0, and 48.0 years, respectively; Table 2). In terms of other characteristics, PAG members were quite different from the general public (Table 2). Public advisory groups had fewer women, and their members were better educated and had higher household incomes than the FMF residents, the urban residents, or the general public as a whole. Given the lower response rate among PAG members, the higher levels of education and income may have been an artifact of nonresponse bias. Although the differences were significant, further investigation would be required to confirm them.

General Awareness of Forest-Related Issues

Foothills Model Forest residents were more in touch with forest-related topics than urban residents. About 40% of FMF residents indicated that they heard or read about such issues daily or weekly, but less than 20% of urban residents did so (Table 3). Similarly, about 40% of FMF residents but only about 14% of urban residents paid a great deal of attention to forest issues (Table 4). With regard to specific forest management initiatives and institutions (Table 5), the general public was less well informed than FMF residents. For instance, about half of FMF residents but only one-third of the general public were familiar with the Alberta protected areas initiative called Special Places 2000. As expected, FMF residents were much more familiar with the FMF than were members of the general public (55.6% and 8.8%, respectively, were familiar or very familiar with the FMF). In

general, although many Alberta residents were attentive to forest management issues, they were significantly less aware of specific initiatives such as the Alberta Forest Legacy and the Alberta Forest Management Science Council than were PAG members and FMF residents.

Sources and Perceived Accuracy of Information

Alberta residents can access information about forest management and related policy development from a variety of sources. Some of these sources, such as television and radio, are readily accessible, whereas others, such as scientific reports, require more personal initiative. Most respondents from the general public acquired knowledge from sources such as newspaper, television, and radio (Table 6). Public advisory group members were less likely to obtain information from these media outlets and more likely to use alternative sources (Table 1). Most PAG members relied on the forest industry (88.7%) and first-hand visits to the forest (83.1%) as primary sources of information (Table 6, Fig. 1). They relied to a lesser extent on scientists such as biologists or ecologists (67.6%) and government agencies (66.2%). In contrast, leaving aside major media sources, urban residents were most likely to obtain information about forest management issues from first-hand visits to the forest (52.1%) and from environmental and conservation organizations

Table 1. Categories of respondents to a survey of attitudes and behaviors related to forest management in Alberta

Survey category	No. of respondents
General population	664
Foothills Model Forest residents	135
Urban residents (from Edmonton and Calgary)	242
All other respondents (from smaller urban centers and rural areas)	287
Members of forest-industry public advisory groups	71

Table 2. Socioeconomic characteristics of survey respondents

	General public						
Characteristics	FMF residents (n = 135)	Urban residents (n = 242)	All other respondents (n = 287)	Total (n = 664)	PAG members (n = 71)	Statistics F value	p
Mean age (yr)	44.1	45.0	46.0	45.6	48.0	1.3	0.254
Women (%)	43.0	50.4	52.3	51.4	16.9	10.8	<0.001
Postsecondary education (%)	53.0	76.5	66.0	65.7	84.0	8.6	<0.001
Household income ≥$70 000 (%)	37.0	34.7	27.2	30.6	49.3	6.3	<0.001

Table 3. Awareness of forest-related topics among the general public[a]

	Respondents (%)			
Frequency	FMF residents (n = 135)	Urban residents (n = 240)	All other respondents (n = 282)	Total (n = 657)
Daily	9.6	2.5	2.1	2.3
Weekly	30.4	17.1	20.6	18.7
Monthly	37.0	40.4	38.3	38.7
Once or twice	21.5	37.1	35.5	35.7
Never	1.5	2.9	3.5	3.2

[a] Respondent had read or heard about forest-related topics.

Note: FMF = Foothills Model Forest.

Table 4. Degree of attention paid to forest issues by the general public

Degree of attention	Respondents (%)			
	FMF residents (n = 135)	Urban residents (n = 242)	All other respondents (n = 284)	Total (n = 661)
A great deal	40.7	14.5	13.4	13.9
Some	45.9	57.4	65.5	61.4
Only a little	12.6	26.4	19.0	22.3
None	0.7	1.7	2.1	1.9

Note: FMF = Foothills Model Forest.

Table 5. Familiarity of the general public with Alberta forest management initiatives and institutions

Initiative or institution	Mean rating[a] (% familiar or very familiar)			
	FMF residents (n = 135)	Urban residents (n = 242)	All other respondents (n = 287)	Total (n = 664)
Alberta Forest Conservation Strategy	2.1 (31.9)	1.9 (21.5)	2.0 (27.2)	1.9 (24.6)
Special Places 2000	2.3 (50.4)	1.9 (33.1)	1.9 (33.4)	1.9 (33.3)
Alberta Forest Legacy	1.7 (17.8)	1.5 (7.9)	1.5 (10.5)	1.5 (9.3)
Sustainable Forest Management Network	1.8 (23.0)	1.4 (8.3)	1.5 (13.2)	1.5 (10.9)
Natural Resources Conservation Board	2.3 (44.4)	2.3 (45.0)	2.4 (46.3)	2.4 (45.7)
Foothills Model Forest	2.5 (55.6)	1.4 (8.3)	1.4 (9.1)	1.4 (8.8)
Alberta Forest Management Science Council	1.7 (12.6)	1.4 (7.0)	1.5 (11.8)	1.5 (9.7)

[a] Rated on a scale of 1 to 4, where 1 = never heard of initiative or institution and 4 = very familiar with initiative or institution.

Note: FMF = Foothills Model Forest.

(43.4%). They were less likely to receive information about forest management from the forestry industry (21.5%) and government agencies (16.9%). In addition to identifying their primary information sources, respondents were asked to indicate their perceptions of the accuracy of various sources of information about forest management (Table 6). For the general public as a whole, scientists and first-hand experience were considered the most accurate sources of information (21.9% and 23.9%), respectively, whereas friends or relatives (22.9%) and government agencies (21.4%) were considered least accurate (Fig. 2). Respondents disagreed with regard to the accuracy of information from environmental and conservation organizations and the forest industry. For example, urban residents considered information from environmental and conservation organizations highly accurate, but FMF residents and PAG members did not. Foothills Model Forest residents and PAG members agreed that information from the forest industry was generally accurate, whereas urban residents did not share this view.

Generally speaking, the Alberta residents surveyed obtained information about forest management issues primarily from major media outlets, but also from a wide range of other sources, including scientists, the forest industry, government agencies, environmental and conservation organizations, and first-hand experience. The predominance of these sources varied according to location of residence within the province and the degree of direct contact and familiarity with the forest sector (e.g., PAG membership). Also, the perceived accuracy of the information source varied among segments of the Alberta public.

Attitudes toward Public Involvement

Without exception, survey participants supported the underlying principles of public involvement implied by the survey statements listed in Table 7. Foothills Model Forest residents, urban residents, and PAG members agreed strongly with statements such as "knowledge of public values and attitudes helps to make better forest management decisions" and "Alberta residents have a right to determine how the forest is managed." Public advisory group members were most likely to agree that "public involvement is of great value" (Table 8), but even among the general public, almost 90% considered public involvement as having some or great value as a component of forest planning. Public advisory group members were more likely to agree that "forest management is too difficult for the public to understand" but also to disagree strongly that "professional forest managers can make more effective decisions without public involvement." These results speak to the complexity of forest management decision making as experienced by PAG members, while signifying a sustained belief in public involvement as a useful tool for better forest management decision making.

Public Involvement Activities

One issue addressed in this study was the range of actions or behaviors undertaken by the Alberta public to express views or to obtain information about forest management during the year 1999. These actions ranged from passive (watching a documentary film) to active (donating to an environmental group). Public advisory group members were more likely than the general public to be involved across the entire range of potential activities (Table 9). Public advisory group members constituted the most active group, participating in an average of 6.5 activities, followed by FMF residents with an average of 2.1 activities. More than 60% of PAG members called or wrote a letter to forestry department officials, and about 35% donated money to an environmental or conservation organization (Table 9, Fig. 3). Survey participants were not asked to indicate the specific beneficiaries of their financial contributions, and it is likely that some respondents interpreted this option broadly, including contributions to hunting and fishing clubs as well as to mainstream environmental organizations. Among FMF and urban residents, 8.3% and 3.3%, respectively, called or wrote to a forestry department official, and 16.5% and 20.9% donated money to an environmental or conservation organization (Table 9). Urban residents were most likely to boycott forest-related products (9.7%) but boycotts appeared less common than most other actions in all areas of the province.

Satisfaction with Public Involvement

Survey participants were asked to indicate the adequacy of public input into certain aspects of forest management and forest policy development, including common activities such as logging operations and the allocation of forested land for protection, but also the design of public involvement activities and strategies for monitoring those activities. In other words, the aim was to determine whether the public wants to have a greater role in assembling the specific mechanisms of public involvement, and if so who will be involved, how the expansion of the role will be accomplished, and where (which regions in the province) it will take place.

The respondents appeared generally satisfied with the level of public involvement related to allocating forested land for logging, logging operations, and pulp

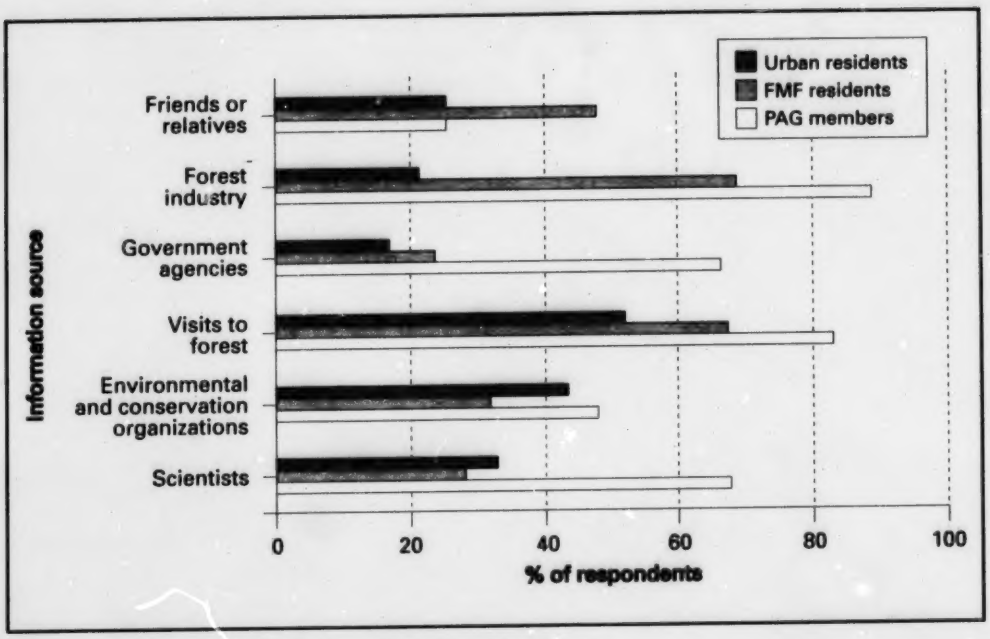

Figure 1. Sources of information about forest issues.
FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

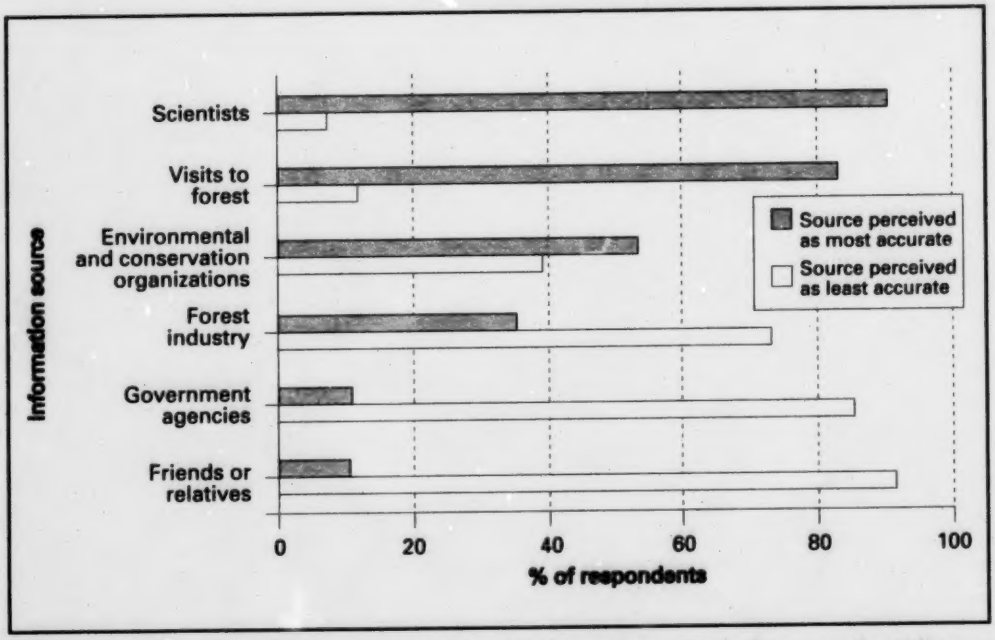

Figure 2. Perception of accuracy of sources of information among the general public as a whole (does not include members of forest-industry public advisory groups).

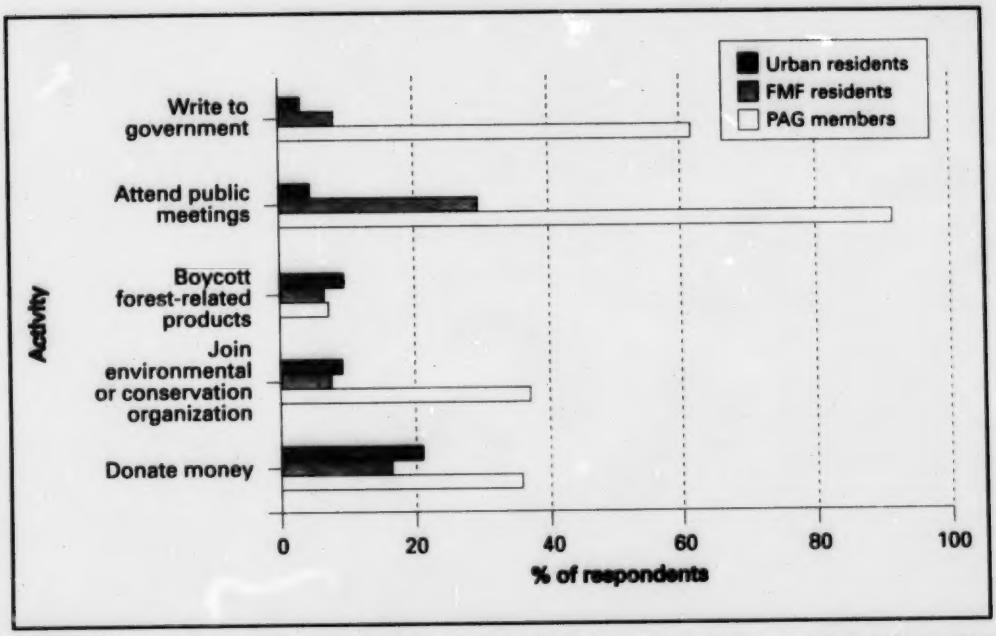

Figure 3. Activities in which respondents participated to express views or obtain information about forest management. FMF = Foothills Model Forest, PAG = forest-industry public advisory group

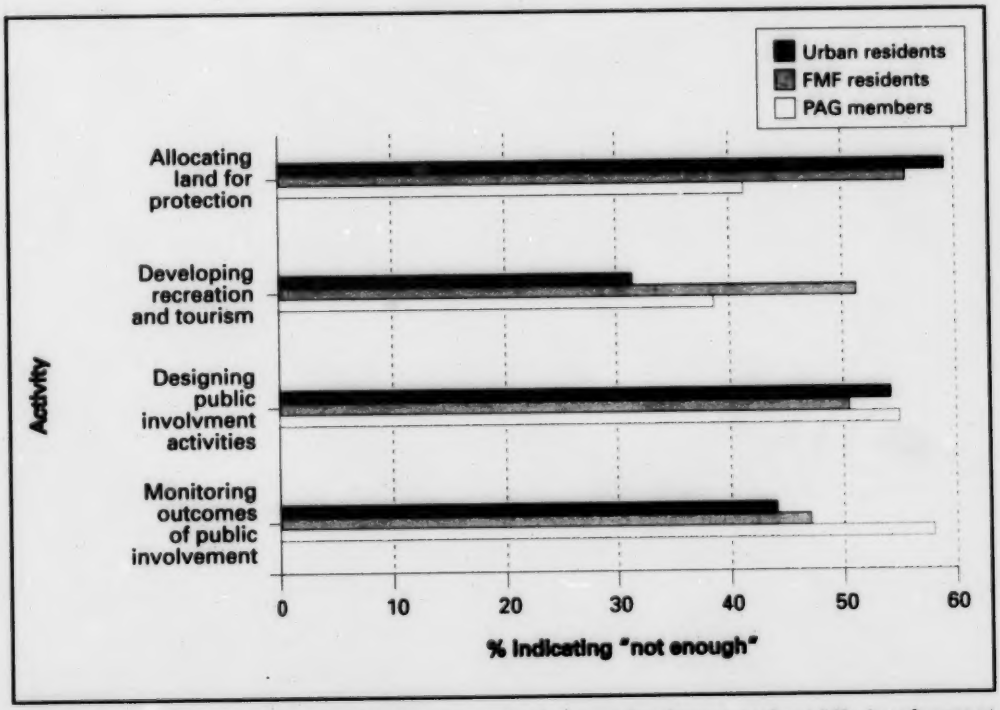

Figure 4. Forest management activities perceived as not having enough public involvement. FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

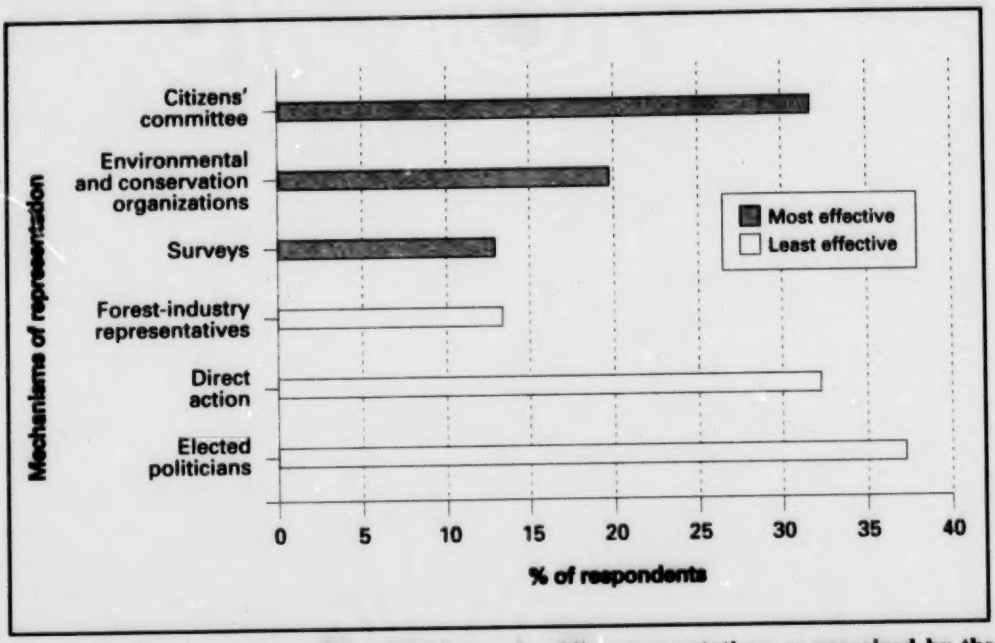

Figure 5. Most and least useful mechanisms of public representations as perceived by the general public.

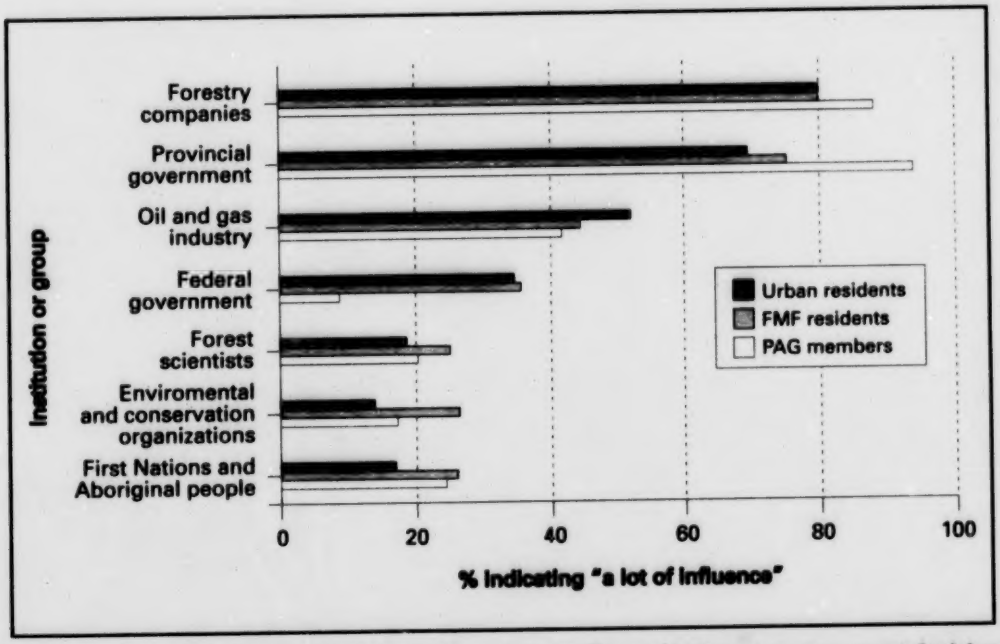

Figure 6. Stakeholders perceived as having a lot of influence in forest management decision making FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

Table 6. Sources of information about forest management

Source	Respondents (%)				
	General public				
	FMF residents (n = 135)	Urban residents (n = 242)	All other respondents (n = 287)	Total (n = 664)	PAG members (n = 71)
Newspaper	81.3	81.8	79.6	80.6	47.9 (–)
Television	67.9	81.8	79.2	80.4	29.6
Radio	47.0	55.0	53.5	54.2	32.4
Friends or relatives	47.8 (–)	25.6 (–)	37.3 (–)	32.0 (–)	25.4
Forest industry	68.7 (+)	21.5	31.7	27.1	88.7 (+)
Government agencies	23.9	16.9 (–)	14.8 (–)	15.8 (–)	66.2
First-hand visits to forests in Alberta	67.2 (+)	52.1	58.5 (+)	55.5 (+)	83.1
Environmental and conservation organizations	32.1 (–)	43.4 (+)	34.9	38.8	47.9 (–)
Scientists (e.g., biologist or ecologist)	28.4	33.1 (+)	25.0 (+)	28.7 (+)	67.6 (+)

Note: FMF = Foothills Model Forest, PAG = forest-industry public advisory group, (+) = considered most accurate source, (–) = considered least accurate source.

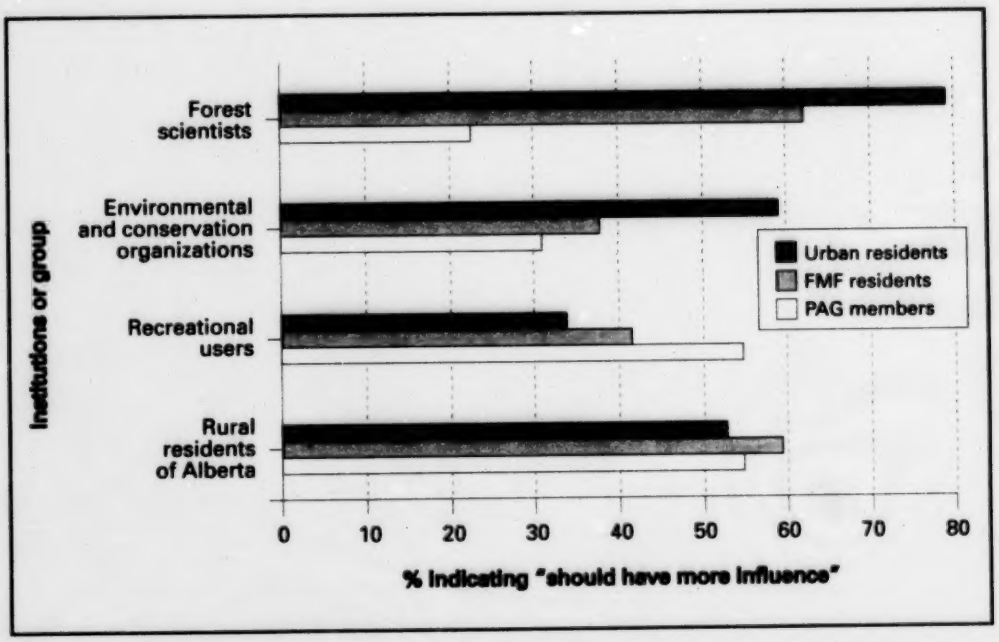

Figure 7. Stakeholders that respondents felt should have more influence in forest management decision making. FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

Table 7. Attitudes of respondents about public involvement in forest management

Statement	Mean rating[a,b] (% of respondents who agree or strongly agree)						
	General public						
	FMF residents (n = 135)	Urban residents (n = 242)	All other respondents (n = 287)	Total (n = 664)	PAG members (n = 71)	Statistics	
						F	p
Involving the public requires too much time and effort	2.2 (20.7)	2.1 (26.9)	1.8 (18.5)	2.0	2.2 (29.5)	1 .59	0 .191
Knowledge of public values and attitudes helps to make better forest management decision	4.1 (84.4)	4.1 (86.8)	4.1 (88.2)	4.1	4.5 (94.3)	1.29	0.276
Forest managers should seek more public participation in forest management	3.8 (74.1)	3.9 (78.9)	3.9 (82.9)	3.9	4.0 (74.7)	0.07	0.973
Professional forest managers can make more effective decisions without public involvement	1.9 (15.6)	2.1a (18.2)	1.9 (17.0)	2.0	1.6b (7.0)	2.35	0.071
Forest management decisions are best left with professional forest managers	2.3 (28.1)	2.4 (28.1)	2.2 (29.2)	2.3	2.2 (22.5)	0.25	0.864
Public involvement helps build trust and support for forest management decisions	4.3 (86.7)	4.3 (91.3)	4.2 (87.1)	4.2	4.6 (98.5)	1.18	0.315
Alberta residents have a right to determine how the forest is managed	4.3 (92.6)	4.3 (87.2)	4.2 (88.9)	4.2	4.3 (88.8)	0.19	0.903
Increased public involvement leads to more confusion and conflict	2.3 (22.2)	2.5 (31.8)	2.2 (25.8)	2.4	2.5 (31.0)	1.32	0.267
Conflict can be resolved through effective public involvement	3.7 (75.6)	3.9 (73.6)	3.6 (73.9)	3.8	4.0 (86.0)	1.93	0.123
Forest management is too difficult for the public to understand	2.0 (18.5)	1.9 (18.2)	1.6a (11.1)	1.7	2.2b (22.5)	3.41	0.017
Debates between the forest industry and environmental organizations are the best way to determine the public interest	2.3 (31.9)	2.8a (33.5)	2.7a (28.9)	2.7	2.1b (21.1)	4.77	0.003
For public involvement (summed scale, α= 0.819)	4.0	4.1	4.0	4.1	4.3	0.93	0.427
Against public involvement (summed scale, α= 0.818)	2.1	2.2	1.6	2.2	2.1	1.56	0.198

[a] Rated on a scale of 1 to 5, where 1 = totally disagree and 5 = totally agree.

[b] Any two values in a given row that do not share a letter are significantly different ($p < 0.05$) according to Tukey's highly significant difference test.

Note: FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

and paper operations (Table 10). In contrast, they felt that there was inadequate public involvement in areas such as allocating land for protection, development of recreation and tourism, and design and monitoring of public involvement activities (Fig. 4). In some respects, by indicating that public involvement is inadequate in these areas of forest management, the respondents may have been indicating a level of concern about current forest management practices. For instance, 51.3% of FMF residents indicated that there was not enough public involvement in developing recreational and tourism activities, which may reflect a degree of concern over existing recreation and tourism opportunities and a desire for change. These concerns were not shared to the same extent by urban residents or PAG members, of whom only 31.2% and 38.1%, respectively, indicated that there was not enough public involvement in this area.

Foothills Model Forest and urban residents were significantly more concerned about inadequate public involvement in allocating forested land for protection, than were PAG members (Table 10, Fig. 4). This result indicates some disconnection between the concerns of the general public and those of PAG members. One limitation of these findings is the lack of information about the direction of concern for forest conservation. Given the struggle to open the Cheviot coal mine near Hinton, Alberta, FMF residents may be interested in reducing forest conservation so as to maintain more than 200 coal-mining jobs, whereas other respondents may be interested in increasing forest conservation.

Preferred Forms of Public Involvement

Given the potential for multiphase public involvement initiatives, one objective of this study was to identify forms of representation acceptable to the Alberta public. In other words, how would the public prefer to be engaged on matters of forest management decision making and policy development? The clear preference was for a citizens' committee that advises government and industry (Fig. 5), rated as the most useful form of public involvement by more than 30% of the general public (Table 11). Environmental and conservation organizations were rated as the most useful mechanism by almost 20% of the general public (Table 11). In contrast, only about 10% of FMF residents rated such organizations as most useful. Foothills Model Forest residents rated citizens' committees (27.5%), attendance at public meetings (22.1%), and mail or telephone surveys (14.5%) as the most useful forms of public involvement. Aside from direct action and relinquishing representation to elected politicians, the respondents indicated a preference for a wide range of forms of public involvement. These results provide significant support for the existing PAG structure designed to advise the Alberta forest industry.

Major Influences on Forest Management Decision Making

Forest management in Alberta is guided by a number of government agencies, industry representatives, and nongovernmental organizations. Survey participants were asked to indicate their beliefs about which organizations or groups of citizens were most influential over forest management decision making (Table 12, Fig. 6). Most (77.6%) specified that forestry companies had a lot of influence, with the provincial government a close second (70.5%). The oil and gas industry in Alberta was considered influential by 49.2% of respondents. The respondents disagreed to some extent over the influence of the federal government: about 35% of FMF and urban residents but less than 10% of PAG members considered the federal government influential. Survey participants were also asked who should have more influence and who should have less influence over forest management decision making (Table 13). Among the general public, a substantial proportion indicated a desire for less influence by the oil and gas industry (57.8%) and forestry companies (48.5%), whereas 52.1% of PAG members indicated a desire for less influence by the

Table 8. Perceived value of public involvement in forest management and planning

	Respondents (%)				
	General public				
Perceived value	FMF residents (n = 135)	Urban residents (n = 240)	All other respondents (n = 282)	Total (n = 657)	PAG members (n = 71)
Public involvement is of no value	0.7	0.8	0	0.4	0
Public involvement has little value	5.2	2.9	4.2	3.9	1.4
Public involvement has some value	36.3	46.3	41.8	42.3	31.0
Public involvement is of great value	49.6	45.4	46.7	46.8	67.6
Not sure	8.1	4.5	7.3	6.5	0

Note: FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

Table 9. Activities in which respondents participated to express views and obtain information about forest management

Activity	Respondents[a,b] (%)					Statistics	
	General public				PAG members (n = 71)		
	FMF residents (n = 135)	Urban residents (n = 242)	All other respondents (n = 287)	Total (n = 664)		F	p
Watching films or television shows related to forests or forest issues	46.7b	29.7c	32.4c	31.2	82.9a	26.75	<0.001
Reading books or magazines about forests or forest issues	48.0b	28.6c	29.2c	29.1	95.7a	47.76	<0.001
Attending a lecture or seminar related to forests or forest issues	25.6b	6.9	8.9c	8.1	85.7a	123.99	<0.001
Calling or writing to a politician	8.3b	3.7b	4.7b	4.3	34.3a	27.55	<0.001
Calling or writing to a forestry department official	8.3b	3.3b	3.5b	3.4	61.4a	109.81	<0.001
Attending a public meeting on forest issues	29.5b	4.7c	10.1c	7.7	91.4a	153.10	<0.001
Serving on a committee dealing with forest management issues	6.6b	1.4b	1.6b	1.5	94.3a	643.73	<0.001
Calling a "phone in" or "talk back" show	8.3	4.2	1.9	2.9	0.0	2.16	0.092
Attending a public rally or protest about a management issue	4.1	2.8	2.3	2.5	4.3	0.45	0.717
Boycotting forest-related consumer products	6.6	9.7	4.2	6.7	7.1	1.90	0.128
Joining an environmental or conservation organization	7.6b	9.3b	6.9b	7.3	37.1a	19.58	<0.001
Writing to a newspaper or magazine	4.1b	1.4b	7.7b	1.1	14.3a	13.16	<0.001
Donating money to an environmental or conservation organization	16.5b	20.9b	14.1b	17.2	35.7a	6.04	<0.001
Mean no. of activities	2.1b	1.3b	1.2b	1.2	6.5a	130.76	<0.001

[a] Except where otherwise indicated.
[b] Any two values in a given row that do not share a letter are significantly different ($p < 0.05$) according to Tukey's highly significant difference test.
Note: FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

federal government. In turn, respondents indicated a desire for more influence from specific sources (Fig. 7). Urban and FMF residents were clearly concerned that there be more scientific input into forest management decision making, which may stem from a general perception that scientific information is not a major component of the current decision-making process. Public advisory group members may be more satisfied with the extent of scientific information used in decision making.

Many urban residents (59.1%) indicated a desire for environmental and conservation organizations to have more influence over forest management decision making, whereas only 31.0% PAG members took this view. For PAG members, the influence of environmental organizations and scientists seemed adequate. These results may relate to the information that PAG members receive from scientists and from environmental organizations as part of their responsibilities– more information or more influence may be considered unnecessary. In contrast, 54.9% of PAG members desired more input from recreational users, perhaps because recreational users are perceived as having little influence in forest management decision making or because many PAG members are themselves active recreationists and are seeking to have more influence in forest management planning. Survey participants were consistent in desiring more influence for rural residents of the province. Overall, 56.3% of the general public (including 52.9% of urban residents) expressed a desire for rural residents to have more influence. In contrast only 40.4% wanted urban residents to have more influence (Table 13).

DISCUSSION

The results of the survey indicate some points of widespread agreement and others for which there is substantial disagreement between various segments of society and PAG members. The authors can imagine that instances of widespread attitudinal agreement across the groups surveyed would be interpreted as good news, indicating that advisory groups can legitimately be considered as representing the public at large and that local and nonlocal interests do not conflict, at least on some matters. Thus, for example, there was considerable agreement over forest management issues. It is possible that various stakeholder groups, at least as indicated by these survey results, are not as oppositional as commonly imagined. In this sense, survey results such as these can help to dispense with some prevailing assumptions of conflict (e.g., that the attitudes of local rural residents are vastly different from those of urban people).

Most importantly, the Alberta public (and those charged with representing them) exhibited near-universal support for public involvement in forest management, and there was no conflict about whether public involvement in and of itself is a good idea. There was also nearly uniform support for citizens' committees that represent the public interest in providing counsel to forest companies. This support was consistent among both rural and urban residents and confers a strong vote of confidence for the PAG framework that is now well established in the provincial forest management administration. The results of this study clearly show that the public is attentive to forest management issues in the province. Most respondents considered public involvement a valuable component of forest management, and many were engaged in a wide range of activities to gather information and to express their views on forest management issues. The results also demonstrated widespread satisfaction with the level of public involvement in traditional forestry activities: allocating forested land for logging, logging operations, and pulp and paper operations. Public involvement was viewed as adequate for these core activities.

Despite these points of similarity, the survey identified some important between-group differences in attitudes and preferences pertaining to public involvement (see also McFarlane and Boxall 2000). First, there was significant discontinuity in socioeconomic profile between the PAG members and the general public. Public advisory group members were more likely to be male, and were better educated and wealthier than the average respondent from the general public. These differences in socioeconomic characteristics may be reflected in the priorities of each group related to forest management and may raise questions about whether the public at large is being accurately represented by the PAGs. However, such questions are open to debate on several fronts. First, these differences may be, at least in part, an artifact of the low response rate among PAG members. Second, other authors (for example, Pitkin 1967; Calhoun 1992; Parkins n.d.) have suggested that the socioeconomic characteristics of PAG members may be largely irrelevant to the issue of whether the public at large is well represented. Such concepts as representative thinking and descriptive representation provide room for a broad range of public values to be represented within a deliberative process without necessarily requiring all members of the public to be present. Finally, the question of precisely whom the PAGs ought to represent remains open. It could be argued

that these groups may better represent local community leaders than the Alberta public as a whole, a situation that may well be desired by forest decision makers.

Public advisory group members differed from the general public not only in terms of socioeconomic characteristics but also in terms of attitudes and behaviors associated with public involvement. Both PAG members and FMF residents were more interested and involved in forest management than was the general public. As might be expected, given their roles, PAG members made more use of in-depth information sources and were more active in a wider range of public involvement activities. In these respects, they were relatively similar to local residents: the FMF residents were also more aware of and interested in forest-related issues. Although most respondents heard or read about forest-related topics on a monthly basis, FMF residents indicated more frequent contact with such topics. This result is not surprising, given that forest management is more salient for people with a direct stake in the outcome, who might view the handiwork of forest managers on a daily basis. The data suggest that the broader public (including urban residents) is less involved in forest management.

Respondents reported a wide variety of sources of information, although the perceived accuracy of those sources sometimes differed considerably between groups. Most groups relied on first-hand visits to the forest as a primary and trusted source of information. Such visits of course demand that people make personal interpretations of what they observe in an industrial forest landscape. Visitors familiar with views of environmental organizations, such as the Sierra Club of Canada, that "clear-cutting is simply the most damaging way to log" (May 1998) might take exception to the apparent destruction in clear-cut logged areas. Conversely, if visitors consider clear-cutting a harvesting method that suitably emulates natural disturbance such as fire or disease (Kimmins 1992), they may come away from the forest with a more positive image of forest management in the province. In either case, the public's views on forest management will be informed by these often-conflicting perspectives, which cannot be ignored in the discourse over acceptable approaches to sustainable forest management.

The public also valued information from scientists. The preference for and perceived accuracy of this source of information are particularly interesting, given that many institutions and organizations including universities, government agencies, the forest industry, and environmental groups employ research scientists to generate knowledge and develop policy recommendations in support of, or in opposition to, existing forest management practices. It is unclear from these results whether survey respondents distinguished between, for example, scientists working within the forest sector and academic scientists. Nonetheless, there was substantial support for scientists and scientific information independent of organizational labels. These findings are consistent with the results of research in Ontario, where the public tended to trust information from scientists and experts (Wagner et al. 1998). In fact, those authors stated that support for science in forest management decisions was relatively strong, and agencies "are likely to significantly increase public confidence in forest management plans by supporting proposed action with scientific information and experts" (Wagner et al. 1998, page 152).

In contrast, respondents held polarized views about the accuracy of information from the forest industry and environmental and conservation organizations. For instance, both FMF residents and PAG members considered the forest industry as one of the two most accurate sources of information, but this view was not shared by urban residents or other members of the general public. Urban residents considered environmental or conservation organizations one of the two most accurate sources, but FMF residents and PAG members considered such groups among the least accurate of sources. These perceptions about the accuracy or trustworthiness of information are linked closely to attitudes about forest management in the province. For instance, if PAG members are willing to accept the accuracy of information provided by the forest industry, then their attitudes may fall more in line with those of industry than with those of organizations holding competing perspectives. Results reported by McFarlane and Boxall (2000) support this hypothesis. They found that PAG members and registered professional forester (RPFs) held attitudes that were more similar to those of forest management than did the general public and members of environmental groups. Some RPFs coordinate public involvement activities for the forest industry and provide information to PAGs. Therefore, they are likely to be in more regular contact with PAG members than are other groups. If this hypothesis is accurate, then PAG members may eventually become less representative of the general public and more representative of RPFs in terms of forest values and attitudes.

Finally, instances of statistically significant differences between groups do not necessarily indicate substantive disagreement. There were relatively few instances in which two groups differed radically (e.g., nearly all urban residents wanted forest companies to have less influence, and nearly all rural peopled want more influence for these companies). Most of the contrasts were not so strong and more often indicated relative differences in support, rather than outright disagreement.

Table 10. Rating of the adequacy of public involvement in specific forest management activities[a]

Forest management activity	Respondents (%)									
	General public								PAG members (n = 69)	
	FMF residents (n = 121)		Urban residents (n = 218)		All other respondents (n = 266)		Total (n = 605)			
	Too much	Not enough	Too much	Not enough	Too much	Not enough	Too much	Not enough	Too much	Not enough
Allocating forested land for logging	20.7	36.4	20.6	34.4	16.9	36.8	18.6	35.7	11.6	42.0
Allocating forested land for protection	5.0	55.7	1.4	59.3	3.8	56.4	2.7	57.7	12.9	41.4
Developing recreational and tourism activities in forested areas	6.7	51.3	12.4	31.2	9.8	38.1	11.0	35.0	5.7	38.6
Logging operations	25.2	28.6	21.8	30.1	24.0	29.2	23.0	29.6	11.8	35.3
Pulp and paper operations	23.3	23.3	23.4	29.8	21.7	27.0	22.5	28.3	11.8	32.4
Designing specific public involvement activities	1.7	50.4	0.9	54.4	0.8	50.2	0.8	52.1	7.2	55.1
Monitoring the outcome of public involvement processes	1.7	47.1	0.5	44.0	0.8	39.5	0.6	41.5	5.8	58.0

[a] Respondents were given three choices: too much, about right, and not enough. For simplicity, the middle category has been omitted from this table.
Note: FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

Table 11. Perceived usefulness of mechanisms for public representation in forest management among the general public

Representation type	Respondents (%)							
	FMF residents		Urban residents		All other respondents		Total	
	Most useful (n = 131)	Least useful (n = 127)	Most useful (n = 236)	Least useful (n = 228)	Most useful (n = 268)	Least useful (n = 258)	Most useful (n = 635)	Least useful (n = 613)
Elected politicians	3.1	35.4	2.1	35.1	5.6	40.7	4.0	37.3
Government land management officials	6.1	3.1	7.2	5.3	7.5	4.3	7.3	4.6
Forest-industry representatives	13.7	11.0	11.9	17.5	13.1	10.1	12.5	13.3
Mail or telephone surveys	14.5	3.1	14.4	5.3	11.6	5.0	12.9	5.0
Attendance at public meetings	22.1	3.1	11.9	3.5	11.2	3.1	11.5	3.2
Citizens' committee	27.5	2.4	31.4	0	32.1	0.4	31.7	0.2
Environmental and conservation organizations	11.5	7.1	20.8	1.8	19.0	2.3	19.8	2.0
Direct action such as boycotts or rallies	1.5	34.6	0.4	31.6	0	34.1	0.5	32.3

Note: FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

Table 12. Perception among respondents of stakeholders with a lot of influence in forest management decision making

Institution or group	Respondents (%)				
	General public				PAG members (n = 71)
	FMF residents (n = 135)	Urban residents (n = 242)	All other respondents (n = 287)	Total (n = 664)	
Provincial government	75.4	69.7	71.2	70.5	94.2
Federal government	35.9	34.7	38.4	36.7	8.8
Forestry companies	80.0	80.1	75.4	77.6	88.4
Oil and gas industry	44.6	52.3	46.6	49.2	42.0
Forest scientists	25.2	18.9	22.1	20.7	20.6
Environmental and conservation organizations	26.7	14.2	22.0	18.4	17.4
First Nations and Aboriginal groups	26.2	17.0	25.1	21.4	24.6
Recreational users	6.1	6.7	8.1	7.5	10.1
Urban residents of Alberta	5.4	1.7	3.6	2.7	13.0
Rural residents of Alberta	7.7	4.6	4.6	4.6	7.2

Note: FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

Table 13. Preference for the amount of influence stakeholders should have on forest management decision making

Source	Respondents (%)									
	General public								PAG members (n = 71)	
	FMF residents (n = 135)		Urban residents (n = 242)		All other respondents (n = 287)		Total (n = 664)			
	Should have more influence	Should have less influence	Should have more influence	Should have less influence	Should have more influence	Should have less influence	Should have more influence	Should have less influence	Should have more influence	Should have less influence
Provincial government	29.6	17.0	26.9	21.1	26.8	18.1	26.9	19.5	12.7	28.2
Federal government	17.3	28.9	22.3	29.8	16.4	31.0	19.1	30.4	4.2	52.1
Forestry companies	14.1	34.8	12.8	50.8	13.6	46.7	13.2	48.5	53.5	2.8
Oil and gas industry	5.9	43.7	5.0	61.6	6.3	54.7	5.7	57.8	29.6	19.7
Forest scientists	62.2	0.7	79.3	1.2	71.1	2.8	74.8	2.1	22.5	32.4
Environmental and conservation organizations	37.8	20.7	59.1	5.4	53.0	9.4	55.7	7.6	31.0	14.1
First Nations and Aboriginal groups	24.4	32.6	32.2	16.5	27.1	24.7	29.5	21.0	22.5	32.4
Recreational users	41.5	11.1	33.9	12.8	39.0	13.6	36.7	13.2	54.9	2.8
Urban residents of Alberta	31.9	21.5	43.8	7.9	37.6	12.9	40.4	10.6	22.5	32.4
Rural residents of Alberta	59.3	2.2	52.9	6.2	59.2	1.7	56.3	3.8	54.9	2.8

Note: FMF = Foothills Model Forest, PAG = forest-industry public advisory group.

CONCLUSION

This study set out to assess current interest in forest management in Alberta, the existing mechanisms of public involvement, and how people might wish to be involved in the future. The survey approach has proven useful in making systematic comparisons among different groups such as rural and urban residents and members of the PAGs. The findings of this study illuminate two conditions in the province with respect to public involvement. First, residents are accessing a wide range of information about forest management and have distinct preferences for one source of information over another depending on their geographic location (urban or rural) and their degree of contact with the forest industry (PAG members or nonmembers). Second, the public strongly supports public involvement in general and clearly prefers citizens' committees as a particular mechanism for such involvement.

Through its examination of the views of PAG members and members of the general public regarding public involvement, this survey allowed an assessment of the representativeness of PAG members in terms of sources of information, perceived accuracy of information, sources of influence on forest management, and the range of public involvement activities in which the public is engaged. Results show that, in some important ways, PAG members were not representative of the general public. They differed in socioeconomic characteristics, in the sources of information accessed with regard to forest management, in the accuracy of those sources, and in the perceived sources of influence over forest management decision making. On the other hand, PAG members and the general public supported the general principles of public involvement and the need for more involvement in certain aspects of forest management. According to Beckley (1999) representation is one of many required elements for effective public involvement. The others include facilitation of two-way information flow, flexibility, openness to new input and new participants, and frank and open discussion. All of these criteria speak less to the profile of participants and more to the process of public deliberations. To assess the effectiveness of PAGs, research is required to determine the extent to which these other criteria for successful civil deliberation are being achieved.

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